

PROTECTING AND IMPROVING HEALTH THROUGH THE RADIOLOGICAL SCIENCES

**A Report to the Surgeon General
prepared by the National Advisory
Committee on Radiation**

**U.S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
Public Health Service**

REPORT TO THE SURGEON GENERAL
U. S. PUBLIC HEALTH SERVICE

ON

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PREPARED BY
THE NATIONAL ADVISORY COMMITTEE ON RADIATION

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NATIONAL ADVISORY COMMITTEE ON RADIATION

DR. RUSSELL H. MORGAN, *Chairman*
Radiologist-in-Chief
Johns Hopkins Hospital
601 North Broadway
Baltimore, Maryland

DR. JOHN H. BARR
Professor of Radiology
Tufts University
136 Harrison Avenue
Boston, Massachusetts

DR. LEON O. JACOBSON
Prof. and Chairman Dept. of Medicine
University of Chicago
950 East 59th Street
Chicago, Illinois

DR. CYRIL L. COMAR
Head, Dept. of Physical Biology
New York State Veterinary College
Cornell University
Ithaca, New York

DR. ROSCOE P. KANDLE
State Commissioner of Health
State of New Jersey Dept. of Health
Box 1540
Trenton, New Jersey

DR. RALPH E. DWORK
Deputy Secretary of Health
Pennsylvania Department of Health
State Capitol
Health and Welfare Building
Harrisburg, Pennsylvania

DR. LAURENCE L. ROBBINS
Radiologist-in-Chief
Department of Radiology
Massachusetts General Hospital
Boston, Massachusetts

MR. ALEXANDER GRENDON
Donner Laboratory
University of California
Berkeley, California

DR. J. NEWELL STANNARD
Prof. of Radiation Biology & Assoc.
Dean for Graduate Studies
University of Rochester School of
Medicine and Dentistry
260 Crittenden Boulevard
Rochester, New York

DR. HERMAN E. HILLEBOE
Columbia University School of Public
Health & Administrative Medicine
600 W. 168th Street
New York, New York

DR. ARTHUR C. UPTON
Chief, Pathology and Physiology Sect.
Biology Division
Oak Ridge National Laboratory
Oak Ridge, Tennessee

DR. RUSSELL I. PIERCE, *Exec. Secretary*
Chief, State Assistance Branch
Division of Radiological Health, BSS
U.S. Public Health Service
Washington, D.C.

SUMMARY AND RECOMMENDATIONS

This is the third in a series of reports prepared by the National Advisory Committee on Radiation for the Surgeon General of the Public Health Service. The first two were directed to the broad responsibilities of the Service in the field of radiation control and to problems concerned with the protection of the public against undue radiation exposure from contamination of the environment with radioactive materials. In this report the Committee traces the remarkable growth that has taken place in the uses of ionizing radiation in the health professions, in industry, and in other walks of life. It also notes a number of emerging problems which not only are of importance from the point of view of radiation protection, but also, if not alleviated, threaten the quality of medical care in the United States and the translation of the advances of atomic research into needed benefits for the people. These problems include (a) serious weaknesses in academic departments of radiology which have restricted efforts to provide adequate instruction of medical and post-doctoral students in the clinical applications of ionizing radiation, including radiation protection; and (b) an increasingly severe shortage of manpower in all branches of the radiological sciences. The magnitude and complexity of these problems are sufficiently great that a concerted effort is needed by the Public Health Service to correct them.

The alleviation of the problems just cited is but a part of a more comprehensive series of responsibilities faced by the Service in the radiological sciences. The Service must play an important role in the prevention of undue exposure of the population from medical, occupational, and environmental sources of ionizing radiation; at the same time, it must actively support the development and application of radiological methods in the diagnosis and treatment of diseases. In order that the Service may effectively meet its enlarging responsibilities in the radiological sciences, the Committee in this

report makes a number of recommendations to the Surgeon General and urges that he take appropriate steps for their early implementation. For convenience, these recommendations are summarized as follows:

1. The Public Health Service should take immediate steps to strengthen its programs in the radiological sciences by unifying their administrative direction. Such action is needed to assure an orderly development of the broad spectrum of radiological activities for which the Service is responsible and to give continuous attention to the balance of benefit and risk in all matters pertaining to the human application of ionizing radiation.

2. The Service should undertake the following training and research and development programs to upgrade the quality of the radiological services which have become such a critical part of medical and dental care and to improve radiation protection practices in the health professions:

- (a) a series of training programs: (i) to strengthen radiological instruction of medical students; (ii) to increase the number of academic radiologists in American medical schools; and (iii) to increase the number of practicing radiologists in the United States.

- (b) a series of training programs to provide increasing numbers of radiochemists, radiological engineers, radiobiologists, radiological physicists and radiological health specialists.

- (c) a series of training programs to provide increasing numbers of technologists in the several disciplines of the radiological sciences.

- (d) a series of applied research and development programs to increase the effectiveness and safety with which radiological procedures are employed in the health professions.

(e) a series of programs to provide training and research facilities for academic departments of radiology in American medical schools.

3. The Service should take the initiative in the formulation and promulgation of (a) standards dealing with the qualifications of personnel who operate x-ray equipment or who use radioactive materials not regulated by the Atomic Energy Commission; (b) design standards for sources containing radium and other radioactive materials that are not reactor by-products; and (c) standards for the premarketing clearance of x-ray equipment used in the health professions and in industry.

4. The Service should take appropriate action to assure that official health agencies play an increasingly prominent role in the appraisal of the health risks associated with the construction and operation of major nuclear facilities.

5. The Service should take immediate steps to strengthen its laboratory and statistical resources in the radiological sciences. These resources are essential components of the PHS effort to meet the Surgeon General's responsibilities to the nation.

6. If needed, appropriate legislative authority should be sought at the earliest possible time to carry out the foregoing recommendations.